

**REMARKS**

Claims 1 and 11 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention. The applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **December 11, 2003**.

**Claim Rejections under 35 USC §103**

Claims 1-18 are rejected under 35 USC §103(a) as being unpatentable over Hirata et al. ('357) in view of Hatakoshi et al. ('858).

The present invention provides for an AlGaN cladding layer (7), a first GaN layer (8), covered by a current blocking layer (9). An opening ( $W_1$ ) is provided in the current blocking layer (9) which is significantly smaller than the width ( $W_2$ ) of the first GaN layer (8). As shown in Figure 2 and discussed on page 21, lines 5-16 of the specification the ratio of  $W_2/W_1$  is between 0.1 and 0.95 and preferably between 0.1 and 0.8. Further, a second GaN layer (10) is provided on top of the current blocking layer (9).

Hirata et al. describes an AlGaInP-based buried-ridge semiconductor laser includes an n-type GaAs current blocking layer (8) buried in opposite sides of a ridge stripe portion (7) which is made of an upper-layer portion of a p-type AlGaInP cladding layer (4), p-type GaInP intermediate layer (5) and p-type GaAs contact layer (6). As shown in Figure 3 and discussed in

column 5, lines 50-53, the width  $W_p$  of the light confinement region is smaller than the width  $W_G$  of the gain region in the GaInP active layer (3).

Hatakoshi et al. describes a semiconductor laser having a sapphire substrate (10). In addition a GaN buffer layer (11) is shown with an n-type GaN contact layer (12), an n-type GaAlN cladding layer (13), an n-type GaN waveguide layer (14), an n-type GaAlN overflow blocking layer (15), an InGaN multi-quantum-well active layer (16), a p-type GaAlN overflow blocking layer (17), a p-type GaN waveguide layer (18) and a p-type GaAlN cladding layer (19).

In Hirata et al. (U.S. patent No. 5,953,357), a current blocking layer 8 is not formed on a ridge striped portion 7, and it fails to describe a current blocking layer formed on a region from a side surface of the ridge portion to the upper surface thereof by a transverse growth technique.

In Hatakoshi et al. (U.S. patent No. 6,031,858), a semiconductor laser device having nitride semiconductor layer is described, but it fails to describe a current blocking layer formed on a region from a side surface of the ridge portion to the upper surface thereof by a transverse growth technique.

Therefore, claims 1 and 11 patentably distinguish over the prior art relied upon by reciting, as exemplified by claim 1,

“A semiconductor laser device comprising: a first nitride based semiconductor layer including a light emitting layer and containing at least one of indium, gallium, aluminum, boron and thallium; a ridge portion formed in a region having a predetermined width on said first nitride based semiconductor layer, having an upper surface having a first width and a side surface, and containing at least one of indium, gallium, aluminum, boron and thallium; a current blocking layer formed on said first nitride based semiconductor layer and on a region from the side surface of said ridge portion to the upper surface thereof by a transverse growth technique, and having an opening having a second width smaller than said first width on the upper surface of said

U.S. Patent Application Serial No. **09/532,786**

Response dated June 4, 2004

Reply to OA of **December 11, 2003**

ridge portion; and a second nitride based semiconductor layer formed on said ridge portion inside said opening and containing at least one of indium, gallium, aluminum, boron and thallium.” (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1-18 under 35 USC §103(a) as being unpatentable over Hirata et al. ('357) in view of Hatakoshi et al. ('858) is respectfully requested.

### Conclusion

In view of the aforementioned amendments and accompanying remarks, claims 1 and 11, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,  
HANSON & BROOKS, LLP



George N. Stevens  
Attorney for Applicant  
Reg. No. 36,938

GNS/alw  
Atty. Docket No. **000351**  
Suite 1000  
1725 K Street, N.W.  
Washington, D.C. 20006  
(202) 659-2930



**23850**

PATENT TRADEMARK OFFICE

H:\HOME\GSTEVEN\00\000351\06-04 Amend